National Aeronautics and Space Administration

LAGNIAPPE

Volume 21 Issue 11 | John C. Stennis Space Center | November 19, 1998

Boeing to build and test RS-68 at Stennis

The Boeing Company's decision to build and test a new rocket engine at Stennis Space Center is expected to provide 100 technical and manufacturing jobs and keep the space center's test stands busy for another 20 to 25 years, according to Boeing.

Boeing chose Stennis as the site to assemble and test the RS-68 engine for the company's Delta 4 rockets. Boeing is investing $8 million to upgrade the B-1 stand at Stennis to test the engine. Plans are for the first engine to be assembled in September 1999.

It is the first long-term commitment NASA has made that provides its rocket engine test facilities at Stennis to be used for commercial use.

Boeing personnel will assemble and test the RS-68 engine at Stennis before shipping it to a new Boeing facility at Decatur, Ala., where the Delta 4 rockets will be assembled. The expendable Delta 4 rockets will be used to launch commercial and government payloads into orbit.

Boeing's Rocketdyne Propulsion & Power segment in Canoga Park, Calif., is

See RS-68, Page 7

STS-95 mission successfully completed

Glenn returns to orbit

Discovery's astronauts glided to a smooth landing at Kennedy Space Center Saturday, Nov. 7, to wrap up a nine-day, 3.6 million-mile mission that marked the return of John Glenn to orbit and saw the crew members successfully conduct more than 80 scientific experiments.

Commander Curt Brown and Pilot Steve Lindsey set Discovery down on the 3-mile long landing strip at Kennedy Space Center in Florida at 11:04 a.m. CST, following a flawless hour-long descent back from space. A missing drag chute compartment door, which popped off during liftoff October 29, posed no problem for the astronauts and had no effect on the landing.

For Payload Specialist Glenn, the landing was a gentler return home than he

See STS-95, Page 7

Pictured right, Stennis Space Center Director Roy Estess greets First Lady Hillary Rodham Clinton in the Firing Room at Kennedy Space Center in Florida during the STS-95 launch. Pictured above is a spectacular view of Discovery during liftoff.

LAGNIAPPE **Commentary**

The von Braun Tower...

We officially named the "conning tower" over at the Visitors Center after a man who is largely responsible for us all being here, testing rockets and conducting science and space applications programs—Dr. Wernher von Braun. Our director, Roy Estess, was assisted by Apollo 13 astronaut Fred Haise and a group of fine Eagle Scouts for the dedication of the tower to von Braun during the observance of NASA's 40th Anniversary on Oct. 23.

Naming the 90-foot observation tower after von Braun is a most appropriate gesture for someone so closely associated with this installation. Not only was the world-renowned scientist largely responsible for getting this "national rocket testing site" built, he had a personal input into the building of the Central Control Building, known today as the Visitors Center, with its futuristic observation tower.

During the design phase of the installation in 1961, future planners at the Marshall Space Flight Center envisioned several test stands to not only test Saturn rockets but other propulsion systems that were planned for America's future in space. The tower, resembling a ship's conning tower, was von Braun's idea of a good vantage point for engineers to study the tests and for media and important visitors to view the dramatic static firings at a safe distance. Von Braun pointed out to his people that "it pays to advertise."

When von Braun's capable but conservative deputy director, Dr. Eberhard Rees, saw the plans for the Mississippi rocket complex, he told the architects, "You'll build that tower over my dead body!" Undaunted, the planners then showed the structure to von Braun, and he overrode Rees' decision. So, insiders at Marshall and the Mississippi Test Facility referred to the structure as the Rees Memorial.

During von Braun's many trips to this center for meetings and to view static firings of the Saturn V first and second stage rockets, he became a regular visitor to the building and waited for and watched many tests from the exotic tower. The enclosed portion was equipped with closed circuit television monitors where engineers could see the action on all points of the test stands.

As the countdown drew close to ignition of a rocket stage, von Braun and the others on hand would climb up the stairs to view the test from the outside deck where they could enjoy the full impact of the noise.

Many of us old timers have fond memories of waiting with von Braun for a test to go. He had a wonderful sense of humor and accepted the disappointments when a test had to be scrubbed, and he cheered and applauded a successful test firing.

Even today, you can go up on the tower right and almost feel the presence of the charismatic von Braun, moving about the tower, slapping people on the back and smiling from ear-to-ear as the sound of the rockets thunder across the swamp. What a legacy we have in this great man and what he bequeathed to us.

M.R.H.

NASA NEWSCLIPS

Newest Mars images on Web—The latest images from NASA's Mars Global Surveyor spacecraft show giant plates of solidified volcanic lava and evidence for active dunes near the planet's north pole with sands that have hopped or rolled across the surface in recent months.

The close-up views of Mars' Elysium Basin reveal the first evidence of huge plates of solidified lava, rather than lake bed sediments, that appear to have been broken up and transported across the Martian surface millions of years ago as they floated on top of molten lava. This implies that the area in the planet's northern lowlands was once the site of giant ponds of lava flows hundreds of kilometers wide.

The images are available on the Internet at the following locations:

http://www.jpl.nasa.gov,
http://photojournal.jpl.nasa.gov,
http://mars.jpl.nasa.gov
http://www.msss.com.

NASA helps save flag—A NASA infrared camera developed to explore Mars will assist the Smithsonian Institution in its three-year project to preserve the Star-Spangled Banner.

The camera, built at NASA's Goddard Space Flight Center in Greenbelt, Md., is taking images of the historic flag in infrared light to help preservationists identify deteriorated and soiled areas not obvious to the human eye. The camera, called the Acousto-Optic Imaging Spectrometer (AImS), was developed by Dr. David Glenar at Goddard.

Considered a national treasure, the Star-Spangled Banner flew over Fort McHenry in Baltimore, Md., during the War of 1812 and inspired the words that became the U.S. national anthem. Despite receiving extra special care at the Smithsonian's National Museum of American History (NMAH), the flag is deteriorating from decades of exposure to light, air pollution and temperature fluctuations.

AImS will take 72 separate images that will be pieced together using a computer to create a mosaic of the massive flag, which is 30 feet wide and 34 feet long. Each image takes approximately 25 minutes to make and is composed of 200 infrared wavelengths, or colors.

After the preservation effort is complete, the Star Spangled Banner will be returned to a newly renovated Flag Hall at the NMAH in Washington, D.C.

Stennis Space Center celebrates NASA's 40th Anniversary

Stennis Space Center celebrated NASA's 40th anniversary in a morning full of activities on October 23. An Apollo 11 astronaut, the pilot of the last shuttle docking with the Russian Space station Mir and Eagle Scouts were all on hand to help celebrate NASA's past and future in space.

Approximately 300 community leaders attending the event were treated to the premiere showing of Stennis Space Center's latest overview video. The short video presentation highlights the center's multiagency composition, community involvement and the three lines of business ... rocket propulsion testing, commercial remote sensing and Earth systems science.

Following opening comments from Mack Herring, SSC historian, and Myron Webb, NASA's public affairs officer at SSC, Center Director Roy Estess gave his State of the Center Address in which he outlined the past, present and future of Stennis Space Center.

"We don't spend much time out here looking back," he said. "We have so much work to do looking forward."

David Brannon, chief of the Commercial Remote Sensing Program Office at Stennis, gave a presentation on enhancing U.S. economic competitiveness with remote sensing technology. Rear Adm. Kenneth Barbor, Commander of the Naval Meteorology and Oceanography Command at Stennis, gave an overview of his agency's mission.

Fred Haise, a native of Biloxi, Miss., and a crewmember of Apollo 13, shared his memories of NASA's first 40 years and his hopes for the next 40 years with attendees.

From left, Apollo 13 astronaut Fred Haise, Eagle Scout David Muse with Troop 150 of the New Orleans Area Council and Stennis Space Center Director Roy Estess unveiled a bronze plaque commemorating Dr. Wernher von Braun's guidance and vision during the early days of NASA and America's space program.

Dominic Gorie, a recent shuttle astronaut from Lake Charles, La., shared the experience of his first space flight.

"We rolled heads-up, and I looked out the pilot's window and for the first time saw the curvature of the Earth," Gorie described as his voice choked with emotion. "In four minutes, it exceeded all the expectations I had about space flight."

The ceremonies concluded with Haise, Estess and David Muse, an Eagle Scout with Troop 150 of the New Orleans Area Council, unveiling a bronze plaque dedicating the Visitors Center's observation tower to the late Dr. Wernher von Braun. Von Braun, one of the world's foremost rocket scientists of the 20th century, was instrumental in the creation of Stennis Space Center, then called the Mississippi Test Facility.

After the ceremony, guests visited with Stennis personnel and took tours of the center's facilities.

These young visitors to Stennis Space Center's Visitors Center are learning how light is used to look at objects on the Earth in different ways. The Rainbow Light exhibit, above, is one of the many interactive exhibits in the Visitors Center that help educate visitors about remote sensing and Stennis Space Center's role as NASA's lead center for Commercial Remote Sensing.

More than 300 students and the public packed the Stennis Space Center Visitors Center auditorium to view the liftoff of STS-95 Oct. 29 from Kennedy Space Center in Florida. When the nine-day mission was complete, more than 175 returned to watch the Space Shuttle Columbia glide in for a smooth landing. Community leaders from Mississippi and Louisiana, totalling more than 50, attended the launch of the crew and Sen. John Glenn into space during this historic mission.

1998 Snoopy Award Winners

Ten Stennis Space Center employees were honored Oct. 23 with the astronaut corps' own personal achievement award, the "Silver Snoopy" including NASA's Mike Cockrell, Mark Moody and Barry Robinson.

The Silver Snoopys were personally presented by astronaut Dominic Gorie, from Lake Charles, La., during his visit to Stennis to help celebrate NASA's 40th Anniversary.

The Silver Snoopy Award recognizes individuals for professionalism, dedication and outstanding support that greatly enhances flight safety and mission success in the Space Shuttle program.

The Silver Snoopy Awards program was initiated 20 years ago and represents the astronauts' recognition of excellence. Each honoree received a silver pin flown aboard STS-91, a letter of commendation and a certificate.

Mark Moody
NASA/Safety & Mission Assurance Office

Jimmy Moretz
Lockheed Martin Stennis Operations

Pictured from left are Gorie, Maury Vander, Boeing's Rocketdyne Propulsion & Power; Barry Robinson, NASA's Propulsion Test Directorate; Mike Cockrell, NASA's Propulsion Test Directorate; Randy Bourgeois, Boeing's Rocketdyne Propulsion & Power; Larry Giveans, Boeing's Rocketdyne Propulsion & Power.

Kenneth Broom
Johnson Controls World Services Inc.

Bonnie Sanders
GB Tech

Michael Don Smith
Johnson Controls World Services Inc.

Stennis Safety Award winners announced

NASA's Safety and Mission Assurance Office at Stennis held the fourth annual Stennis Space Center Safety Day Kickoff Oct. 22 in the Visitors Center auditorium.

During the program, which emphasized that safety should not be the focus for just one day, but rather the entire year, several groups at Stennis were recognized for their outstanding safety record.

Lockheed Martin Stennis Operations and Boeing/Rocketdyne Propulsion and Power at Stennis received plaques recognizing 500,000 hours of no lost time injuries or accidents during fiscal year 1998. Chet Miller, general manager of Lockheed Martin Stennis Operations, accepted the plaque on behalf of his company; and Dave Geiger, site director for Boeing/Rocketdyne accepted the award along with several representatives from his project.

Cimarron, a subcontractor at Stennis Space Center, received a plaque for having no lost time injuries or accidents during fiscal year 1998. Joe Stewart, project manager of Cimarron, accepted the award.

Also receiving recognition for having no lost time injuries or accidents during fiscal year 1998 were contractors GB Tech and Datastar.

NASA's James Washington received special recognition for the performance of a life saving deed. On Sept. 22, Washington performed the Heimlich Maneuver to save a fellow Stennis employee from choking.

NASA's Mike Rewis was the host for the ceremony. Remarks and presentations of awards were made by John Gasery, chief of the Safety and Mission Assurance Office, and Stennis Space Center Director Roy Estess.

Boeing/Rocketdyne was recognized for achieving 500,000 hours of no lost time injuries or accidents during fiscal year 1998. Pictured from left: Gasery; Ken Cook; David Haselmaier; Maury Vander; Jim Foil; Jim Wahl; Walt McCann; Brian Sproles; Skip Cox; Dave Geiger, Rocketdyne site director; Mike Rewis, host of the Safety Day ceremony; and Estess.

Gasery, left, and Estess, right, present an award of recognition to Joe Stewart, project manager of Cimarron at Stennis for having no lost time injuries or accidents during fiscal year 1998.

Gasery, left, and Estess, right, present a certificate of special recognition to NASA's James Washington for the performance of a life saving deed.

Gasery, left, and Estess, right, present an award of recognition to Chet Miller, general manager of Lockheed Martin Stennis Operations, for achieving 500,000 hours of no lost time injuries or accidents during fiscal year 1998.

Three engineers at Stennis Space Center received NASA Patent Issuance Awards for new innovations they developed at the facility. From left, Resource 21's Tom Koger, Lockheed Martin Stennis Operations' Harvey Smith and NASA's Bud Nail proudly display awards. Nail, Koger and former SSC employees Patrick Diaz and Vivien Cambridge designed a predictive sensor technology so that a sensor's endpoint reading could be accurately predicted prior to reaching that point. Smith, along with former NASA employee Heidi Barnes, was granted a patent for a hydrogen fire imager. The NASA Technology Transfer Office at Stennis Space Center hosted the awards ceremony.

Heating and cooling systems—The space station will be an industrial research and development laboratory to test lower cost heating and cooling systems, long-life power converters, safer chemical storage and transfer processes, air and water purification systems, waste management systems and recycling systems.

Robotics—Telerobotic and robotic systems validated on the space station will increase human efficiency in space and result in reliable, low-maintenance robots for industry and commercial purposes on Earth.

Communications and Transportation—Research on large space vehicles will lead to improved computer software for developing new, lightweight structures, such as antennae and solar collectors, with precision pointing accuracy. Such developments will greatly benefit the communications, utility and transportation industries.

First US Space Station component to launch

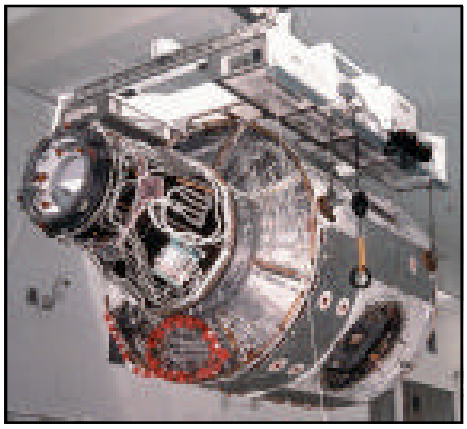
The International Space Station has moved to the doorstep of space as the first U.S.-built station component, the Unity connecting module, was moved to the launch pad to be loaded onto the Space Shuttle Endeavour.

Endeavour is targeted to launch on Dec. 3 with an international six-person crew that will carry Unity to a rendezvous and attachment with the Zarya control module. Zarya is targeted to launch on a Russian Proton rocket Nov. 20 from the Baikonur Cosmodrome, Kazakstan. The move signals the completion of work for Unity in Kennedy Space Center's Space Station Processing Facility, a special hangar where the module has been undergoing final assembly, checkout and launch preparations since June 1997.

More than a half-dozen major station components are now in the Space Station Processing Facility at Kennedy, and by the end of the year more than 500,000 pounds of U.S. and international station equipment will have been completed. Upcoming milestones for Unity at the launch pad include an interface verification test, a check of electrical and data connections between Unity and Endeavour and the installation of Unity into Endeavour's payload bay.

Unity is the cornerstone for the International Space station. It is a six-sided connecting module to which all future U.S. station modules will attach. Unity will serve as a habitable passageway to various parts of the station. Attached to Unity's forward and aft berthing ports for launch are two conical mating adapters, one to serve as a permanent connection to the Russian station segment and another that will serve as a Space Shuttle docking port.

Because it is a station hub, more than six miles of electrical wiring, 216 lines that will carry fluids and gases and 50,000 mechanical items have been installed in Unity.



Unity is prepared for launch Dec. 3.

Homepage informs public about SSC jobs

For those seeking employment at the many different agencies at Stennis Space Center, the NASA Human Resources Office now has an on-line listing of job opportunities.

The Web site was suggested by members of Partners for Stennis, a support group of community leaders whose goal is to inform the public about the unique multiagency facility at Stennis Space Center that provides significant economic, educational and social benefits to each of their communities.

Information for the site was organized by NASA's Paulette Lovingood, management analyst in the NASA Human Resources and Management Services Office.

The Web site offers links to many of the more than 30 agencies, including NASA and the Navy at Stennis Space Center.

"This one-stop job information site will expedite an individual's pursuit of job opportunities at Stennis Space Center," said Lovingood.

The Web address is http://**www.ssc.nasa.gov/hr-contacts/contacts.html.**

NASA Environmental Officer Ron Magee, left, addresses members of a joint subcommittee of the Mississippi Senate Committees on Appropriations and Environmental Protection, Conservation and Natural Resources. Four state senators visited Stennis Nov. 5 to learn about the technology that may one day be used to help manage the state's natural resources.

Craig is moving into the future with Stennis Space Center

SSC Employee Profile

The challenge of helping guide America's space program into the future and working with a group of good people are what Mark Craig enjoys about his job.

Craig, originally from Midland, Texas, is deputy director of Stennis Space Center, where he assists the center's director, Roy Estess, in management of NASA activities.

"We, of course, are ultimately responsible for seeing that the center is meeting commitments to our customers and that our programs are run safely, efficiently and effectively," said Craig, who has been deputy director since 1995.

After graduating from Midland High School, Craig went to Purdue University where he earned a bachelor's degree in astronautical engineering in 1971. He pursued engineering post-graduate study at Rice University in Houston and completed the Massachusetts Institute of Technology Program for Senior Executives in 1992.

Craig recently completed his 30th year with NASA. He began as a co-op student at the Johnson Space Center in Houston working on the Apollo program that landed Americans on the moon in 1969. He became an expert in trajectory analysis, spacecraft design and aerodynamics and was on the initial design teams of both the Space Shuttle and Space Station.

During his career with NASA in Houston and at NASA Headquarters in Washington, D.C., Craig held management positions on the Space Shuttle, the Space Station, the Mars Rover/Sample Return Project, and the Moon/Mars Space Exploration Initiative. He also worked with the White House, Congress and foreign governments and was the architect of the NASA Strategic Plan.

"We have very capable people and a great team at Stennis. We're positioned to do very, very well in the future."

Mark Craig

"I'm very fortunate to have had the opportunity to both help shape and then develop these important exploration programs," Craig said.

Craig believes in the mission of Stennis and NASA as a whole. He talks with great enthusiasm about the future of the space program and Stennis' role in that future.

"I think the majority of space activity in the future will be commercial. Historically, the government's job is to explore new territory and then to enable the commercial development that follows and opens the frontier," he said. "We at Stennis are the 'A' and the 'Z' of the space program—the 'A' because we test the rockets that get us into space and the 'Z' because we enable the next big commercial push, remote sensing from space of conditions on Earth."

Craig says he enjoys coming in to work each day at Stennis, largely because of the people with whom he works.

"We have very capable people and a great team at Stennis. We also have a culture that has a natural advantage, it's customer oriented. We're positioned to do very, very well in the future."

When he's not helping shape the course of Stennis Space Center and America's space program, Craig can be found at home in Slidell with his wife Christy and their daughter Katie. Another daughter, Jennifer, just graduated from college and lives in Indianapolis where she works for General Electric.

RS-68...

(continued from Page 1)

meet the growing demand for commercial and government satellite launches.

"Rocketdyne has been at Stennis as a contractor for the entire 30-year history of the center," said Stennis Space Center Director Roy Estess. "Now, they are bringing this Boeing/Rocketdyne commercial venture to Stennis, and in this regard they will be our (NASA's) customer. I think it's great."

Jim Taylor Jr., NASA's RS-68 project manager at Stennis, said, "We at Stennis are extremely excited about participating in the RS-68 development testing. Stennis has evolved a large propulsion test expertise which is unequaled anywhere. I feel there is no greater recognition of that fact, than to have Boeing select us to test the RS-68."

NASA has tested and will continue to test the Space Shuttle Main Engines, also produced by Boeing/Rocketdyne, at Stennis and has begun preliminary tests on the linear aerospike engine for NASA's X-33 reusable launch vehicle.

Delta 4 launch vehicle

"We have had a long and beneficial partnership with the men and women of NASA at Stennis, and we are looking forward to this significant expansion in our activities here," said Byron Wood, vice president and general manager for Rocketdyne Propulsion & Power.

STS-95...

(continued from Page 1)

experienced more than 36 years ago when he splashed down in the Atlantic Ocean in his Friendship 7 capsule after becoming the first American to orbit the Earth. Glenn experienced only about 3 g's of gravitational force during re-entry, half of what he experienced during his Mercury capsule mission in 1962.

More than 300 people packed the Stennis Space Center's Visitors Center auditorium to view the launch of STS-95 and Glenn's return to space.

Approximately 175 supportive and interested local residents returned to SSC Nov. 7 view the spectacular landing and see all the astronauts return safely to Earth.

Stennis celebrates culture

Denise Dedeaux, left, with Johnson Controls World Services Inc., watches as Diane Altsman with the Gulf of Mexico Program samples some Hispanic food during Stennis Space Center's Hispanic Heritage Month observance held in October. Special assistance was provided by NASA's Carmen Ramirez.

Hispanic Heritage Month and International Fest were were sponsored by the Stennis Space Center Association for Cultural Awareness.

Jim Parker with the National Data Buoy Center at Stennis, left, examines the artifacts and photos at Florence and Dale Duffie's Panama exhibit. The exhibit was part of the 1998 Stennis Space Center International Fest held in October. The festival is now in its fifth year.

QUICK LOOK

■ **The NASA Alumni League** will hold a meeting at 12:30 Dec. 17 in the director's conference room in Building 1100. For more information, contact Helen Paul at 228-467-7113.

■ **The following will be closed Nov. 26 in observance of Thanksgiving**: Keesler Federal Credit Union, Stennis Child Care Development Center, Janitorial Services, APG, Snack Bar, U.S. Post Office, Visitors Center and communications.

The following will be closed Nov. 26 and 27: Rightway Travel, Airport Dispatch, Hancock Bank, the barber shop, cafeteria, clinic, Corporate Cleaners, NASA Exchange Store, logistics services, JCWS mail service, JCWS taxi service and the Wellness Center. A/C and heating will be in a weekend configuration.

■ **The following will be closed on Dec. 25 and Jan. 1 in observance of Christmas and New Year's**: Rightway Travel, airport dispatch, the barber shop, cafeteria, clinic, communications, Stennis Child Development Center, janitorial services, logistics, JCWS mail service, APG, snack bar, taxi service and the U.S. Post Office. The Wellness Center, the Visitors Center will be closed Dec. 25 only. Corporate Cleaners will be closed Dec. 24 through Jan. 4. The NASA Exchange store will be closed Dec. 31 and Jan. 1.

LAGNIAPPE

Lagniappe is published monthly by the John C. Stennis Space Center, National Aeronautics and Space Administration, Stennis Space Center, MS. Roy Estess is the center director, Myron Webb is the public affairs officer, and Lanee Cooksey is news chief. Comments and suggestions should be forwarded to the Lagniappe Office, Building 1200, Room 208, Stennis Space Center, MS 39529, or call (228) 688-3583.

EDITOR:.....Sharon Saucier
CONTRIBUTING WRITERS:
Robert Collins.....Kelly Smith
.....Courtney Thomas
PHOTOGRAPHERS:
.....Charles Jones

NASA at SSC is on the Internet at http://www.ssc.nasa.gov

National Aeronautics and Space Administration

John C. Stennis Space Center
Stennis Space Center, MS 39529

Official Business
Penalty for Private Use $300

BULK RATE
U.S. POSTAGE PAID
Permit No. G-27